WHAT IS CLAIMED IS:

Sub. B1

1. A power device, comprising:

a gate electrode, a source electrode, and a drain electrode provided within an active region of a semiconductor substrate of first conductivity type; and

a vertical diffusion region of second conductivity provided at a periphery the active region, the vertical diffusion region extending continuously from a top surface of the substrate to a bottom surface of the substrate, the vertical diffusion region including:

an upper portion having a first depth, and

a lower portion having a second depth that is substantially greater than the first depth.

2. The power device of claim 1, wherein the power device is an IGBT device.

3. The power device of claim 1, wherein the vertical frame is a scribe diffusion region.

4. The power device of claim 1, wherein the upper portion primarily comprises of an impurity of first type and the lower portion comprises of an impurity of second type different from the impurity of first type.

5. The power device of claim 4, wherein the impurity of first type has a first diffusion rate and the impurity of second type has a second diffusion rate, the second diffusion rate being greater than the first diffusion rate.

6. The power device of claim 5, wherein the impurity of first type is boron.

7. The power device of claim 6, wherein the impurity of second type is aluminum.

8. The power device of claim 1, wherein the first depth of the upper portion is less than about 70% of the second depth of the lower portion.

9. The power device of claim 8, wherein the first depth of the upper portion is about 50% of the second depth of the lower portion.

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10. The power device of claim 1, wherein the vertical diffusion frame provides forward and reverse blocking capabilities.

11. A power device; comprising:

a gate region, a source region, and a drain region provided in an active region of a semiconductor substrate of first conductivity type, the substrate having a front side and a backside;

a scribe diffusion region of second conductivity type provided around the active region, the scribe diffusion region extending continuously from the front side of the substrate to the backside of the substrate, the scribe diffusion region comprising an impurity of first type and an impurity of second type different from the impurity of first type.

12. The power device of claim 11, the scribe diffusion region including a first portion adjacent to the front side of the substrate and a second portion adjacent to the backside of the substrate, the first portion primarily comprising the impurity of first type and the second portion primarily comprising the impurity of second type.

13. The power device of claim 11, wherein the scribe diffusion region provides the power device with substantially symmetrical forward and reverse blocking ratings.

14. The power device of claim 11, wherein the impurity of first type is boron and the impurity of second type is aluminum.

15. The power device of claim 11; further comprising:

a plurality of wells of second conductivity provided within the active region of the substrate, the plurality of wells having an impurity of third type.

16. The power device of claim 15, wherein a diffusion rate of the impurity of second type is greater than that of the impurity of third type.

17. The power device of claim 11, wherein the substrate of first conductivity is an N type substrate, and the scribe diffusion region of second conductivity is a P type region.

18. A method for fabricating a power device, comprising:

providing a substrate of first conductivity, the substrate having a front side and a backside;

forming a scribe diffusion region of second conductivity at a periphery of the substrate, the scribe diffusion region extending continuously from the front side to the backside of the substrate, wherein the scribe diffusion region includes an impurity of first type and an impurity of second type that is different than the impurity of first type.

19. The method of claim 18, further comprising:

providing a peripheral impurity region at a first scribe area on the front side of the substrate, the peripheral impurity region being provided with the impurity of first type; and

providing the impurity of second type at a second scribe area on the backside of the substrate.

20. The method of claim 18, wherein a concentration of the impurity of first type at the peripheral impurity region is between about 10^{19} to 10^{20} atoms/cm^3.

21. A method for fabricating a power device, comprising:

providing a substrate of first conductivity, the substrate having a front side and a backside;

forming an aluminum structure at a scribe area on the backside of the substrate; and

placing the substrate having the aluminum structure in an environment with a first temperature that is less than the melting point of aluminum to prevent the aluminum structure from melting.

22. The method of claim 21, wherein the environment has oxygen to convert the aluminum structure into an aluminum oxide structure.

23. The method of claim 22, wherein the environment is an inside of a furnace.

24. The method of claim 23, further comprising:

increasing the temperature of the environment to over 1000 degree Celsius; and

leaving the substrate within the environment until aluminum atoms have diffused to at least a midpoint between the front and back sides of the substrate.